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**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

Application Number: 10/696,869  
Filing Date: October 30, 2003  
Appellant(s): RAGHAVENDRAN, VENKAT K.

\_\_\_\_\_  
Gregory N. Clements  
For Appellant

**EXAMINER'S ANSWER**

This is in response to the appeal brief filed June 3, 2008 appealing from the Office action mailed March 11, 2008.

**(1) Real Party in Interest**

A statement identifying by name the real party in interest is contained in the brief.

**(2) Related Appeals and Interferences**

The following are the related appeals, interferences, and judicial proceedings known to the examiner which may be related to, directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal:

11/141,238, Appeal Brief filed on May 29, 2008

**(3) Status of Claims**

The statement of the status of claims contained in the brief is correct.

**(4) Status of Amendments After Final**

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

**(5) Summary of Claimed Subject Matter**

The summary of claimed subject matter contained in the brief is correct.

**(7) Claims Appendix**

The copy of the appealed claims contained in the Appendix to the brief is correct.

**(8) Evidence Relied Upon**

4,983,247	KIM	1-1991
6,369,157 B1	WINCKLER et al.	4-2002
5,175,198	MINNIICK et al.	12-1992

**(9) Grounds of Rejection**

The following ground(s) of rejection are applicable to the appealed claims:

***Claim Rejections - 35 USC § 103***

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
2. Claims 1-14, 26, 29-32, 34-35, and 38-54 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kim 4,983,247 in view of Winckler et al., 6,369,157 (Winckler).

Kim discloses in Figure 1, a composition of a fiber reinforced laminate material comprising a fiber reinforced composite (16) having a resin rich surface layer (12), as required by claim 1, wherein said composite can be used in the formation of molded articles such as car hoods, doors and panels. See column 2, lines 40-50, column 3, lines 11-18, and Figure 1. In addition, Kim discloses that the reinforced fiber layer is a glass mat and that a variety of polymer matrices may be used such as polycarbonate or polyester and blends thereof, further disclosing that the resin forming layer (resin rich layer) is the same resin as used in the fiber reinforced body or a resin that is compatible with said body. This disclosure would render obvious the limitations as set forth in present claims 7-11, 26 and 29. See column 3, lines 28-40. Kim also discloses that fillers of the type contemplated by applicants, such as pigments can be included in the surface layer, per claim 12, and that the glass fibers can be present in an amount within applicants' range as set forth in claim 42. See column 5, lines 7-10 and column 7, line 68. As set forth above, Kim teaches that the polymer matrices can comprise a blend, further teaching in the examples a resin rich layer formed on the surface of a composite sheet, said composite sheet comprising a blend of polycarbonate and polybutylene terephthalate (i.e. a macrocyclic polyester) containing glass fibers. Kim additionally

teaches that powders of a polycarbonate thermoplastic material or polycarbonate cyclic material or a thin film of "XENOY" were used in the formation of the resin rich layer. See column 7, line 64 through column 8 and line 52. Kim is silent as to the specific proportions of the polycarbonate within the blend and does not specifically teach a "macrocylic oligoester" of the type set forth in the instant claims.

Winckler teaches a blend of a macrocyclic polyester oligomer and a polymerization catalyst (per claims 4-6) that is polymerized to form macrocyclic polyesters such as polybutylene terephthalate (PBT) and is used in the formation of prepregs, which are used to form plastic composite articles such as automotive body panels. See abstract, and column 19, lines 9-11. In addition, Winckler teaches that his macrocyclic polyester oligomer is of the type set forth by applicants in claims 34-35 and 39, such as 1,4-butylene terephthalate. See column 5, lines 1-10. Also, Winckler teaches that a filler can be added as required by claims 13 and 14. See column 10, lines 15-19. Winckler further teaches that his prepregs are formed by infusing or impregnating the macrocyclic polyester oligomer blend into a dry fibrous substrate layer. See columns 13-17.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to form a fiber reinforced laminate whereby the resin rich layer and glass mat polymer matrix are formed from the same material and that material being a blend of polycarbonate and a polyester such as polybutylene terephthalate, as disclosed by Kim. Though Kim is silent as to the specific polyester material of the instant claims, it would have been obvious to modify the teachings of Kim by using a blend of

polycarbonate and a macrocyclic polyester oligomer blended with a polymerization catalyst as taught by Winckler, motivated by the ability to reduce processing time and energy consumption during the molding process because said macrocyclic polyester oligomers have favorable crystallization rates. Moreover, the teachings in Kim of polybutylene terephthalate would have rendered obvious the instant claimed "sulfonated polyalkylene terephthalate" and "1,4-butylene terephthalate." Accordingly, claims 2-3, 30-31, and 40, would have been obviated by the aforementioned teachings.

As to the amount of polycarbonate, it is the examiner's position that since the result sought and the ingredients used were known, namely, a composition of a fiber reinforced laminate material comprising a layer of thermoplastic resin, a layer of a polymerizable component comprised of polycarbonate and macrocyclic oligoester and a layer of reinforcing fibers, wherein each layer fuses to form a composite having a surface that is substantially fiber free, said ingredients being thermoplastic resin, polycarbonate, and macrocyclic oligoester, it was within the expected skills of one having ordinary skill in this art to arrive at the optimum proportion of those ingredients, and any improved results would have resulted from experimentation of an obvious nature. *In re Reese*, 129 USPQ 402 (CCPA 1961).

As to claim 32, Winckler teaches that various titanates can be used as the catalyst in his polymerization process, though not specifically teaching the instant claimed titanate ester. It is the position of the examiner that the selection of a specific titanate polymerization catalyst from among many, being selected for its art recognized purpose is no more than a preferential selection of a known catalyst to be used in its

known function. Therefore, in the absence of factual evidence on this record of unexpected or superior properties of the resultant fiber reinforced laminate, said properties being directly related to the instant claimed catalyst, this limitation is not construed to be a matter of invention.

Regarding claim 38, it would have been an obvious expedient to the skilled artisan at the time the invention was made to select and determine a polycarbonate of optimal MFI during routine experimentation. It has long been held that discovery of an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F2d 272, 205, USPQ 215 (CCPA 1980).

Regarding claim 41, Winckler does not specifically teach that the amount of his catalyst is present in the instant claimed range. Nonetheless, it is the position of the examiner that since the result sought and the ingredients used were known, it was within the expected skills of one having ordinary skill in this art to arrive at the optimum proportion of those ingredients. *In re Reese*, 129, USPQ 402 (CCPA 1961).

As to claims 43-54, Winckler teaches the formation of multi-layered laminates as required by claims 43 and 47. This teaching would have provided a suggestion to the skilled artisan for the formation of a fiber reinforced laminate material of the type contemplated by applicants. It would have been obvious to one having ordinary skill in this art at the time the invention was made to modify Kim by including plural reinforcing fiber layers and plural overlayers because this modification would involve a mere duplication of parts, which is not construed to be a matter of invention. *St. Regis Paper Co. v. Bemis Co., Inc.* 193 USPQ 8 (7th Cir. 1977). Claims 44-46 and 48-54 would

have been obvious over the combined teachings of Kim and Winckler for reasons mentioned above in the preceding paragraphs.

Therefore, the combined teachings of Kim and Winckler render obvious the invention as claimed in present claims 1-14, 26, 29-32, 34-35, and 38-54.

3. Claims 43-54 are rejected under 35 U.S.C. 103(a) as being unpatentable over Minnick et al., 5,175,198 in view of Winckler et al., 6,369,157 B1 (Winckler), as applied above to claims 1-14, 26, 29-32, 34-35, and 38-54.

Winckler is as set forth above and incorporated herein. Minnick teaches composites having at least one Class A surface finish, said composites comprising fiber reinforcements and matrixes. The composites comprise 2-4 sheets of woven glass cloth that are laid-up between sheets of flame-retardant polycarbonate film with a core layer of non-flame-retardant thermoplastic. In addition, Minnick teaches that the flame-retardant polycarbonate may also contain other flame-retardant resins such as polybutylene terephthalate resins. Moreover, Minnick teaches that in forming his composite flame-retardant polycarbonate films are positioned as the outer layers of a lay-up, the subsequent underlaying layers on each side of the lay-up are fiber reinforcement, and a thermoplastic polycarbonate core layer is positioned between the fiber reinforcement, per claims 43 and 47. See entire document and in particular, column 2, lines 61-68 and columns 5-7. As to the core layer being a "polymerizable component comprised of chemically reactive components" or "a polymerizable component comprised of a macrocyclic oligoester", it would have been obvious to modify the teachings of Minnick by using a blend of polycarbonate and a macrocyclic



polyester oligomer blended with a polymerization catalyst as taught by Winckler, motivated by the ability to reduce processing time and energy consumption during the molding process because said macrocyclic polyester oligomers have favorable crystallization rates. Regarding claims 44-46 and 48-54, the teaching of Winckler as set forth above and incorporated herein renders these claims obvious.

Therefore, the combined teachings of Minnick and Winckler would have rendered obvious the invention as claimed in present claims 43-54.

#### **(10) Response to Argument**

Appellants argue that Kim does not teach a "polymerizable component comprised of a macrocyclic oligomer".

Agreeably Kim does not teach a macrocyclic oligomer. However, it is the combined teachings of Kim and Winckler that the examiner has relied upon.

Appellants argue that the combination of Kim in view of Winckler would tell one skilled in the art to replace the thermoplastic resin rich layer 12 of Kim with the macrocyclic oligomer/catalyst component of Winckler, it does not teach one skilled in the art to use both the thermoplastic resin layer and a macrocyclic oligomer layer, particularly when the macrocyclic oligomer layer also comprises polycarbonate, as set forth in claim 1, further arguing that one skilled in the art, if combining Kim and Winckler would replace the thermoplastic resin of Kim with the blend of the macrocyclic polyester oligomer and catalyst taught by Winckler and that there is nothing in these references to suggest that you would add polycarbonate to the polymerizable component having the macrocyclic oligomer as claimed in claim 1 and that there is nothing to suggest that you

would replace or combine the macrocyclic polyester oligomer and catalyst blend with a thermoplastic resin taught by Kim.

The examiner disagrees. In particular, Appellants' arguments appear to adopt a misplaced all or none approach that relies upon the bodily incorporation of the teachings of Winckler into those of Kim. This is incorrect. The issue lies in what the combination of references makes obvious to the person of ordinary skill not whether a feature of one reference can be bodily incorporated in the other to produce the subject matter claimed. *In re Henley*, 112 USPQ 385, (Fed. Cir. 1983). Kim discloses that a fiber reinforced laminate material comprising a layer comprising a polycarbonate and macrocyclic polyester, PBT are known in the art. While the teachings of Kim are based upon the commercial product "XENOY", it is the examiner's position that the skilled artisan is expected and presumed to know something about the art other than what a reference literally teaches. The skilled artisan in possession of the teachings of Kim and Winckler would have been reasonably motivated to form a layer of a polymerizable component comprised of polycarbonate and a macrocyclic polyester oligomer (and catalyst) motivated by the ability to achieve reduced processing times as taught by Winckler.

Appellants argue that the examiner has used hindsight reconstruction.

In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does

not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

Appellants argue that with respect to claims 43 and 47, neither Kim nor Winckler nor the combination thereof, teach a five-layer composite, and neither teaches a core having the polymerizable component comprised of the chemically reactive component, further arguing that neither teaches a double layer of reinforcing fibers and two outer layer of thermoplastic resin.

In this regard, it is the examiner's position, as set forth previously, that the mere duplication of parts, is not a matter of invention, and thus is obvious. It would have been obvious to one having ordinary skill in this art at the time the invention was made to modify Kim by including plural reinforcing fiber layers and plural overlayers because this modification would involve a mere duplication of parts, which is not construed to be a matter of invention. *St. Regis Paper Co. v. Bemis Co., Inc.* 193 USPQ 8 (7th Cir. 1977).

Appellants make a separate argument for claim 47.

The examiner's position is as set forth above and incorporated herein.

Appellants argue that the key to the examiner's combination is that one skilled in the art would be motivated by the ability to reduce processing time and energy consumption during the molding process because of macrocyclic oligomers have favorable crystallization rates and that the examiner has not provided an adequate reason for one skilled in this art to make this substitution because the examiner's

reason is faulty, further arguing that the examiner has provided no proof of faster crystallization rates for polycarbonates than polyesters.

In this regard, appellants' arguments have been noted. It is the position of the examiner that a *prima facie* case of obviousness has been established, thus, the burden shifts to the appellant to come forward with arguments and/or evidence to rebut the *prima facie* case.

Appellants argue that combining Minnick with Winckler would not be obvious and would not reduce processing time and energy consumption and the rate of crystallization as suggested by the examiner.

In this regard, appellants' arguments have been noted; however, there is no factual evidence on this record to substantiate this allegation.

Appellants argue that with respect to claim 43 and 47 that there is no polyester blended with the polycarbonate outer layer and that in the rejection of Minnick in view of Winckler there will be no lower outer layer comprised of thermoplastic resin.

In this regard, claims 43 and 47 do not exclude other components.

**(11) Related Proceeding(s) Appendix**

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/Jill Gray/

Primary Examiner, Art Unit 1794

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